

Remarks

Claims 1-7 are pending in the application. Claims 1-7 have been rejected. Claims 2-5 have been canceled. Claims 1, 6 and 7 have been amended. Claims 31-40 are new. The amendment of claim 1 is made by the importation of the claim limitations of dependent claim 5. Claims 6 and 7 have been amended so as not to depend on canceled claims 2-5 and to contain proper antecedent basis. New claims 31-40 are supported by the original claims and are fully supported throughout the specification (*e.g.* examples 1-5). No new matter has been added in the amended or new claims.

The claim amendments and cancellations should not be construed to be an acquiescence to any of the claim rejections. Rather, they are being made solely to expedite the prosecution of the above-identified application. Applicants expressly reserve the right to further prosecute the same or similar claims in subsequent patent applications claiming the benefit of priority to the instant application. 35 USC § 120.

Claim Rejections Based on 35 USC § 112¶2

Claims 1-7 stand rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter, which Applicants regard as the invention. In particular, the Examiner states that “non-cytolytic” and “essentially non-cytolytic” are vague and indefinite.

As amended, independent claim 1, from which the remaining claims depend, is directed to recombinant human immunodeficiency virus-1 (HIV-1) wherein the natural signal sequence of the HIV-1 envelope glycoprotein gp120 is replaced with one of two naturally-occurring signal sequences (*i.e.* either the mellitin signal sequence or the IL-3 signal sequence).

Since claim 1, as amended, distinctly points out the subject matter which Applicant regards as the invention, Applicants respectfully request reconsideration and withdrawal of the rejections of claims under 35 USC § 112¶2.

Claim Rejections Based on 35 USC § 112¶1

The Examiner has rejected claims 2-4, 6, and 7 under 35 USC § 112, first paragraph contending that the claimed subject matter was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. In particular, the Examiner states that “[T]he issue raised in this application is whether the original application provides adequate support for the broadly claimed genus of modified signal sequences.”

Applicants have amended the claims so that they are directed to the embodiments specifically described in the pending patent application. For example, example 5 of the patent application describes replacement of the HIV1 gp120 natural signal sequence with the mellitin signal sequence (SEQ ID NO 9) and interleukin 3 signal sequence (SEQ ID NO 10), clearly indicating that applicants had possession of these embodiments at the time that the instant patent application was filed. Accordingly, the Applicants respectfully request withdrawal of the rejection of claims 2-4, 6 and 7 under 35 USC § 112¶1.

In addition, the Examiner has rejected claims 1-7 under 35 USC § 112¶1, as the Examiner contends that the specification fails to enable a person skilled in the art to make or use the invention commensurate in scope with these claims.

As the claims have been amended so that they are specifically directed to the embodiments described in the examples, applicants respectfully request withdrawal of the rejection of claims 1-7 under 35 USC § 112¶1.

Claim Rejections Based on 35 USC § 102(b)

The Examiner has rejected claims 1-5 under 35 USC § 102(b) as being clearly anticipated by Li *et al.* (1994) and Li *et al.* (1995). The Examiner contends that Li and colleagues disclose the preparation of recombinant HIV-1 viruses wherein the wildtype gp120 signal sequence has been replaced with MSS or ILSS.

However, neither reference discloses the preparation of HIV-1 viruses containing the modified signal sequence. Rather, what both references teach is replacement of the natural

signal sequence of the HIV-1 gp120 gene with signal sequences of either mellitin or murine interleukin 3 and expression of the genes in *Spodoptera frugiperda* (SF9) cells using recombinant baculovirus, Autographa californica nuclear polyhedrosis virus (AcNPV). The papers also show use of site-directed mutagenesis to change positively charged amino acids in the HIV-1 natural signal sequence and expression in SF9 cells using AcNPV. The expression of signal sequence altered gp120 genes in SF cells was carried out with cloned single gp120 gene and not the whole virus.

What is claimed in the instant patent application is different from the single gene expression in foreign gene expression system described in the two Li papers. In other words, while the Li references disclose the expression of a single modified gene in a foreign gene expression system, the instant application discloses and claims the preparation of recombinant HIV-1 viruses. As the Li references do not teach every limitation of the pending claims, Applicants respectfully request withdrawal of the claim rejection under 35 USC § 102(b).

Claim Rejections Based on 35 USC § 103(a)

The Examiner has rejected claims 6 and 7 under 35 U.S.C. § 103 as being unpatentable over Li *et al.* (1994) or Li *et al.*, (1996) in view of Daniel *et al.* (1992). The Daniel reference is cited as teaching use of nef-deficient SIV.

As explained above, the Li references do not teach the preparation of recombinant HIV-1, only the expression of modified genes in insect cells using a recombinant baculovirus expression system. As the Daniel reference does not provide the deficient teaching of the primary references, a *prima facie* showing of obviousness has not been established. Accordingly, Applicants respectfully request the withdrawal of the claim rejection under 35 USC § 103(a).

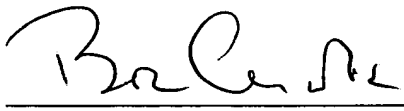
Conclusion

In view of the above amendments and remarks, the Applicants believe that the pending claims are in condition for allowance. If a telephone conversation with Applicant's Attorney would expedite prosecution of the application, the Examiner is urged to contact the undersigned.

Respectfully submitted,
Patent Group
Foley Hoag LLP

Foley Hoag LLP
155 Seaport Boulevard
Boston, MA 02210

Telephone: (617) 832-1000
Telecopier: (617) 832-7000

By: 
Beth E. Arnold
Reg. No. 35,430
Attorney for Applicants

Date: 9/27/04